Middle School Initiative

PART I
COVER SHEET

CAP 1 SEMESTER 2 WEEK 4

COURSE: Arnold Aerospace Education, Achievement 2

LESSON TITLE: Introduction to Flight

LENGTH OF LESSON: 50 Minutes

METHOD: Lecture - Performance

REFERENCE(S):
1. *Aerospace Dimensions*, Module 1, Chapter 1, 2000
2. Study Guide, 2000
3. Leader Guide, 2000
4. Resource Guide, 2000

AUDIO/VISUAL AIDS/HANDOUTS/ACTIVITY MATERIAL(S): As Needed

COGNITIVE OBJECTIVE: To learn how an airplane flies and the forces affecting the laws of motion.

COGNITIVE SAMPLES OF BEHAVIOR: Upon completion of this chapter, the cadet should know:
1. The relationship between Bernoulli's Principle and Newton's three laws of motion and how they were used to develop a machine that could fly.
2. The coefficient of lift and the parameters involved.
3. The parts of an airplane and an airfoil.
4. The four forces affecting an airplane in flight.
5. The three axes, movement around those axes and the control surfaces that create the motion.

AFFECTIVE OBJECTIVE: N/A

AFFECTIVE SAMPLES OF BEHAVIOR: N/A

Middle School Initiative

PART II
TEACHING PLAN

Introduction

ATTENTION: Today, you will begin your Aerospace Education studies. We will start with *Aerospace Dimensions*, Module 1, Chapter 1 - Introduction to Flight.

MOTIVATION: Have you ever wondered what allows an airplane to fly? What are the forces that an airplane must overcome to stay up in the air? Today, we will discuss the answers to these and other questions.

OVERVIEW: During this period, you will begin your aerospace studies with the Introduction to Flight.

Body

NOTE: The instructor should use the lesson plan in the Leader Guide, Pages 1-3. The cadets should become familiar with and often refer to the Study Guide, Pages 1-7. For today's lesson, the cadets should use the Study Guide, Pages 8-11. A materials list is located in the Leader Guide, Page 45.

Conclusion

SUMMARY: We have studied the material in *Aerospace Dimensions*, Module 1, Chapter 1.

REMOTIVATION: Now you understand the forces that allow an airplane to fly.

CLOSURE: Next week, we will continue our AE studies with Module 1, Chapter 2 - To fly by the Lifting Power of Rising Air. **Any questions? See you next week!**

Middle School Initiative

PART III
LESSON REVIEW

LESSON OBJECTIVE(S): Today, we learned:
1. The relationship between Bernoulli's Principle and Newton's three laws of motion and how they were used to develop a machine that could fly.
2. The coefficient of lift and the parameters involved.
3. The parts of an airplane and an airfoil.
4. The four forces affecting an airplane in flight.
5. The three axes, movement around those axes and the control surfaces that create the motion.

LESSON QUESTIONS: Contained in *Aerospace Dimensions*, Module 1, Chapter 1.